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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,970	10/02/2003	Yasuo Manabe	243134US3	6286
22850 7590 02/06/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MORILLO, JANEL COMBS	
			ART UNIT 1742	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/06/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/675,970

Applicant(s)

MANABE ET AL.

Examiner

Janelle Combs-Morillo

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark (US 6,146,477) in view of JP 2001-158951A (JP'951).

Clark teaches a method of forming an aluminum alloy casting by hot isostatically pressing (HIPing) followed by solution heat treating, quenching, and artificially aging (see Ex. 1). Clark teaches that the temperature of HIPing is "about the same" as the solution heat treatment temperature, and that pressure is applied during HIPing (column 4 lines 27-30, column 5 lines 24-28).

Clark does not specify either (a) maintaining the temperature/introducing heat or (b) a cooling step in-between the hot working and solution heat treating step. It would have been obvious to one of ordinary skill in the art to (a) maintain the temperature by introducing heat immediately after the hot working step, because JP'951 teaches that maintaining the temperature at high temperatures immediately after hot working and prior to precipitation hardening is beneficial for enhancing the strength (while saving energy with respect to a cooling step in-between) see JP'951 at abstract.

Concerning claim 2, Clark teaches the alloy is preheated to the HIP temperature (column 4 lines 19-20) in an autoclave to a high temperature.

Art Unit: 1742

3. Claims 3, 4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark and JP'951 in view of "ASM Handbook: Vol. 7 Powder Metal Technologies and Applications" (hereinafter "ASM Vol. 7") p. 608-609.

Clark and JP'951 are discussed in paragraphs above. Clark teaches the alloy is heated in an autoclave chamber to the HIP temperature (column 4 lines 19-20) and hot isostatically process in said chamber at said temperature (column 5 lines 30-33). "ASM Vol. 7" p 608-609 describes typical autoclave apparatus used to in HIP process, including a cold-loading autoclave as taught by Clark (or alternatively, a hot loading autoclave, as claimed in instant cl. 6), and wherein said vessel contains a furnace/heater together with the material to be processed in a chamber that is evacuated, purged, and heated (p608). Said autoclave furnace chamber is held to meet the instant limitations of "heat insulating structure" and "heat resistant porous heat insulator". It would have been obvious to one of ordinary skill in the art to perform a process of HIPing as taught by Clark with a cold-loading autoclave taught by "ASM Vol. 7" because Clark teaches that an autoclave is preferably used and the material is heated after loading into the autoclave, and because "ASM Vol. 7" teaches that said cold-loading type autoclave allows for near-net shape processing (p 608, 3rd column). Alternatively, it would have been obvious to one of ordinary skill in the art to use a hot-loading type autoclave as taught by "ASM Vol. 7" because hot-loading autoclaves are known for the suitable purpose of reducing cycle time (p 608, 3rd column).

Response to Amendment/Arguments

4. In the amendment filed on November 21, 2006 applicant added new claim 6 and submitted various arguments traversing the rejections of record.

5. In response to applicant's argument that the prior art does not teach maintaining a high temperature after application of pressure, JP'951 clearly teaches maintaining a high temperature immediately after hot working and prior to precipitation hardening (T5 type heat treatment).

Further, Clark does not teach a cooling step in-between HIPping and solution heating. Clark teaches: a) placing a material into hiping chamber and heating and holding at about 960 °F for about 2 hrs with a pressure of 14-16 ksi (column 5 lines 29-32), b) solution heat treating at 960-1000 °F (column 5 lines 36-37), which must involve an addition of heat and qualifies as maintaining at the high temperature. Similarly, JP'951 provides further motivation to NOT cool/quench in-between a hot working and high temperature heat treatment (though applied to a hot working step of extrusion, the same energy would be conserved for the instant invention and the HIP process taught by Clark).

6. Applicant's argument that the present invention is allowable over the prior art of record because Clark and JP'951 are not combinable/not analogous art has not been found persuasive. Though Clark and JP'951 are drawn to different types of working applied to aluminum alloy products, both are drawn to solution heat treating aluminum alloys in order to improve properties, and are combinable for the reasons set forth above (Clark at col. 5 lines 34-35; JP'951 at abstract).

7. Applicant's argument that the present invention is allowable over the prior art of record because there is no evidence that the autoclave of the ASM Handbook is porous has not been

Art Unit: 1742

found persuasive. The autoclave taught by the ASM Handbook is held to have at least some degree of porosity, within the scope of the presently claimed "heat resistant porous heat insulator".

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM
January 30, 2007

ROY KING
SO. SENIOR PATENT EXAMINER
10/675,970